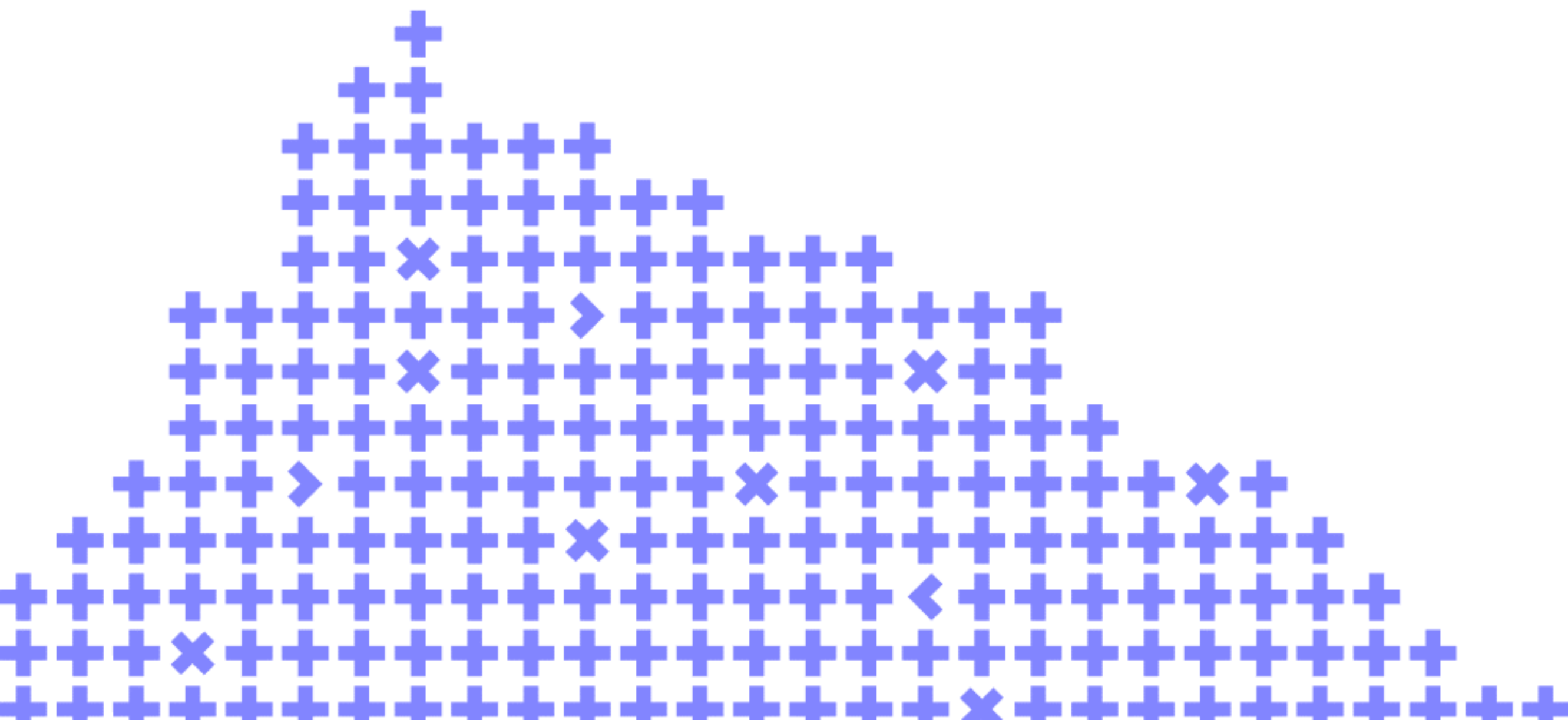


Karen Mkhitaryan

Head of QA Department at
Ameriabank



Co-organizer

Yandex



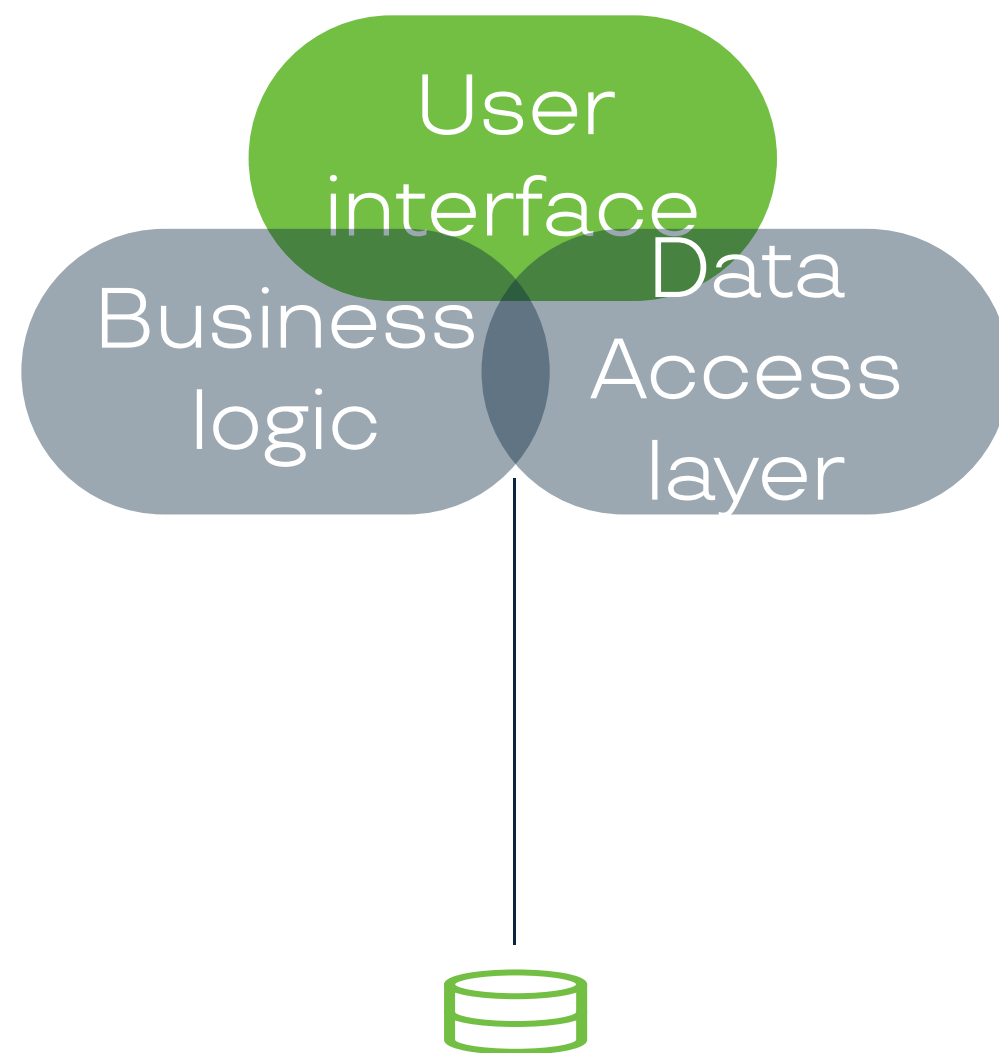
The Role of **API** Testing & the Importance of **API** Automation

Outline

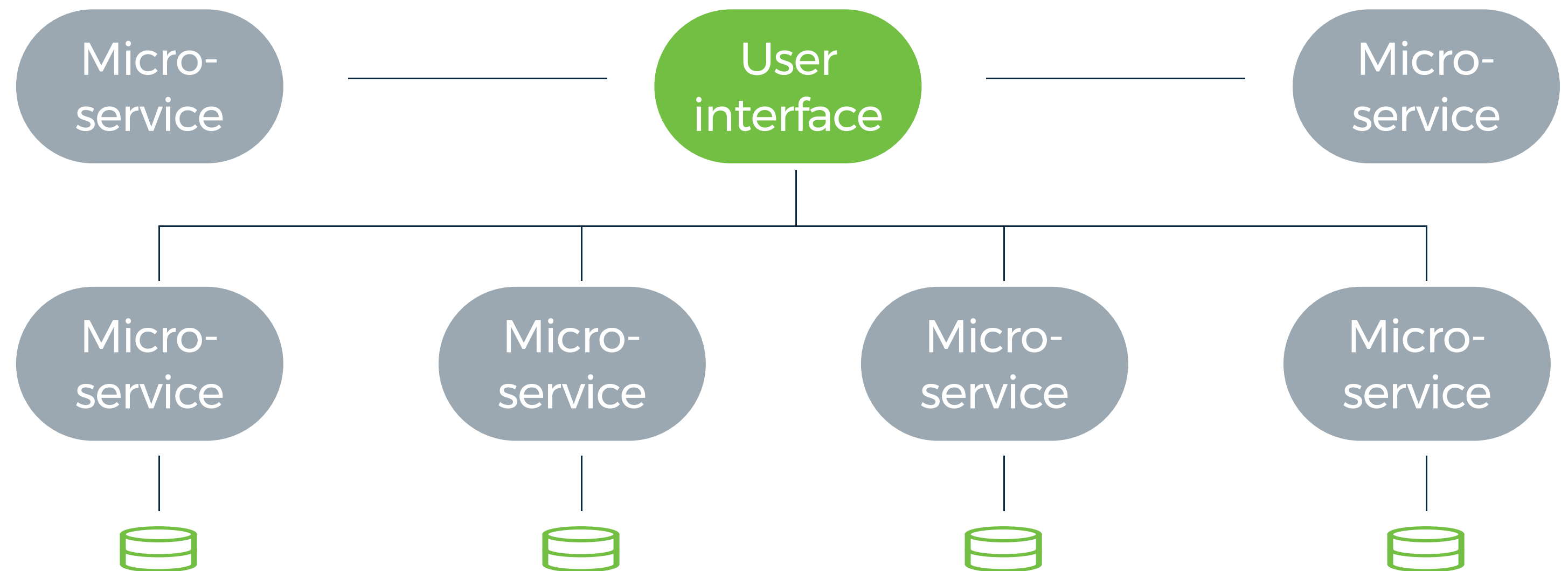
- The Importance and the role of API automation
- The differences between API and UI automation
- API automation guide
- Q&A

- **API Test Automation**
- **API Automation**

Monolithic architecture



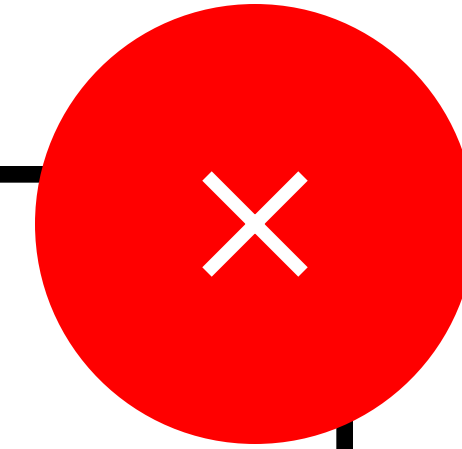
Microservice architecture



1. Microservice Architecture as response to challenges
 - Flexible, Scalable, Easier to maintain
2. Business logic as a crucial point for the application
3. Business logic requires testing to be done in API level

- Not enough importance is given to API Automation

	API Test Automation
	UI Test Automation



Are we on the right track?
WHY not enough importance
is given to API Automation?

API Automation is ignored:

- 1. Lack of knowledge**
- 2. Lack of practice**
- 3. Comfort zone**

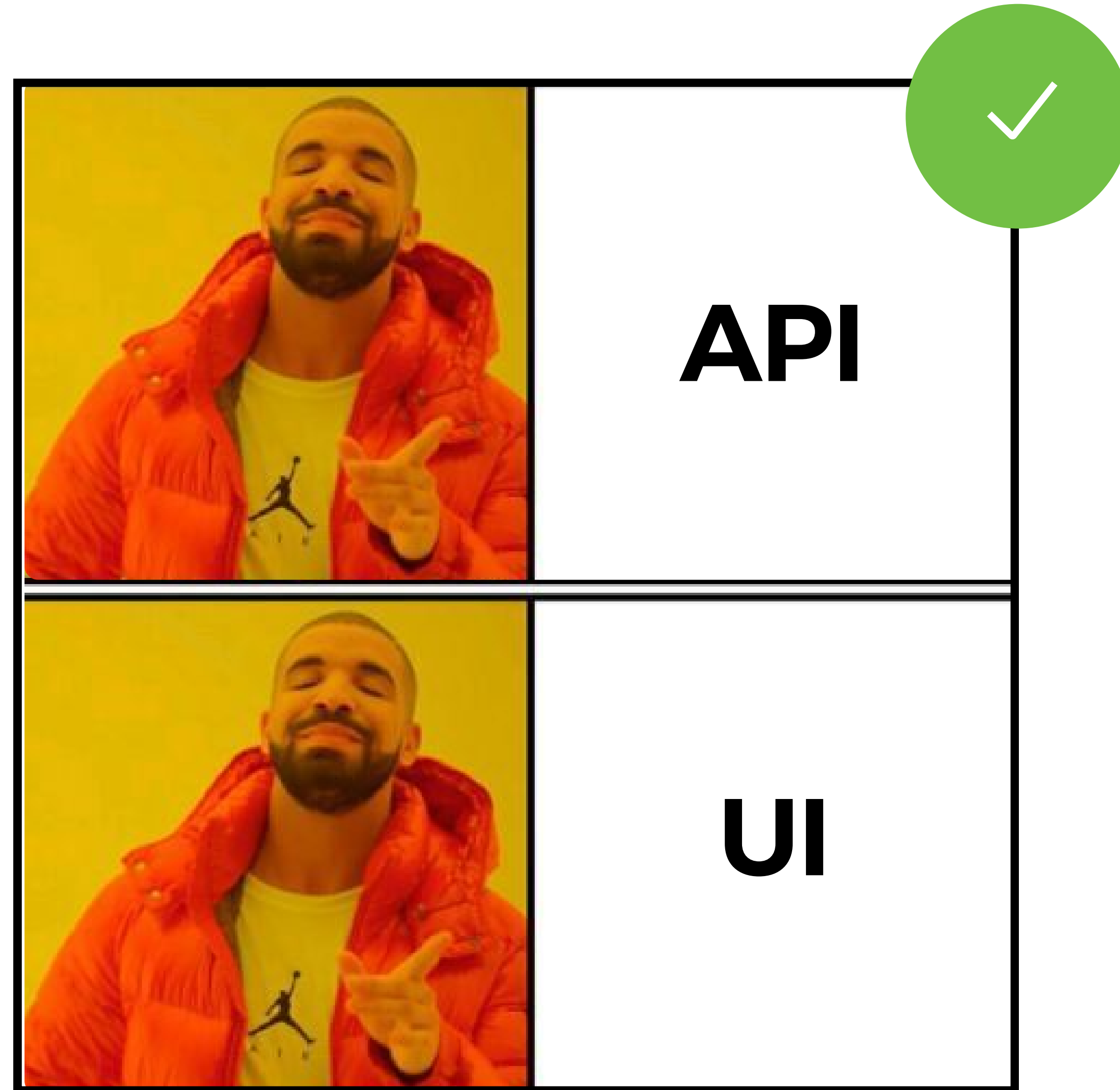
Result: Everything is done via UI Automation

Satisfying result through UI vs writing optimal code

Optimal Code

- Precondition
- Test
- Postcondition



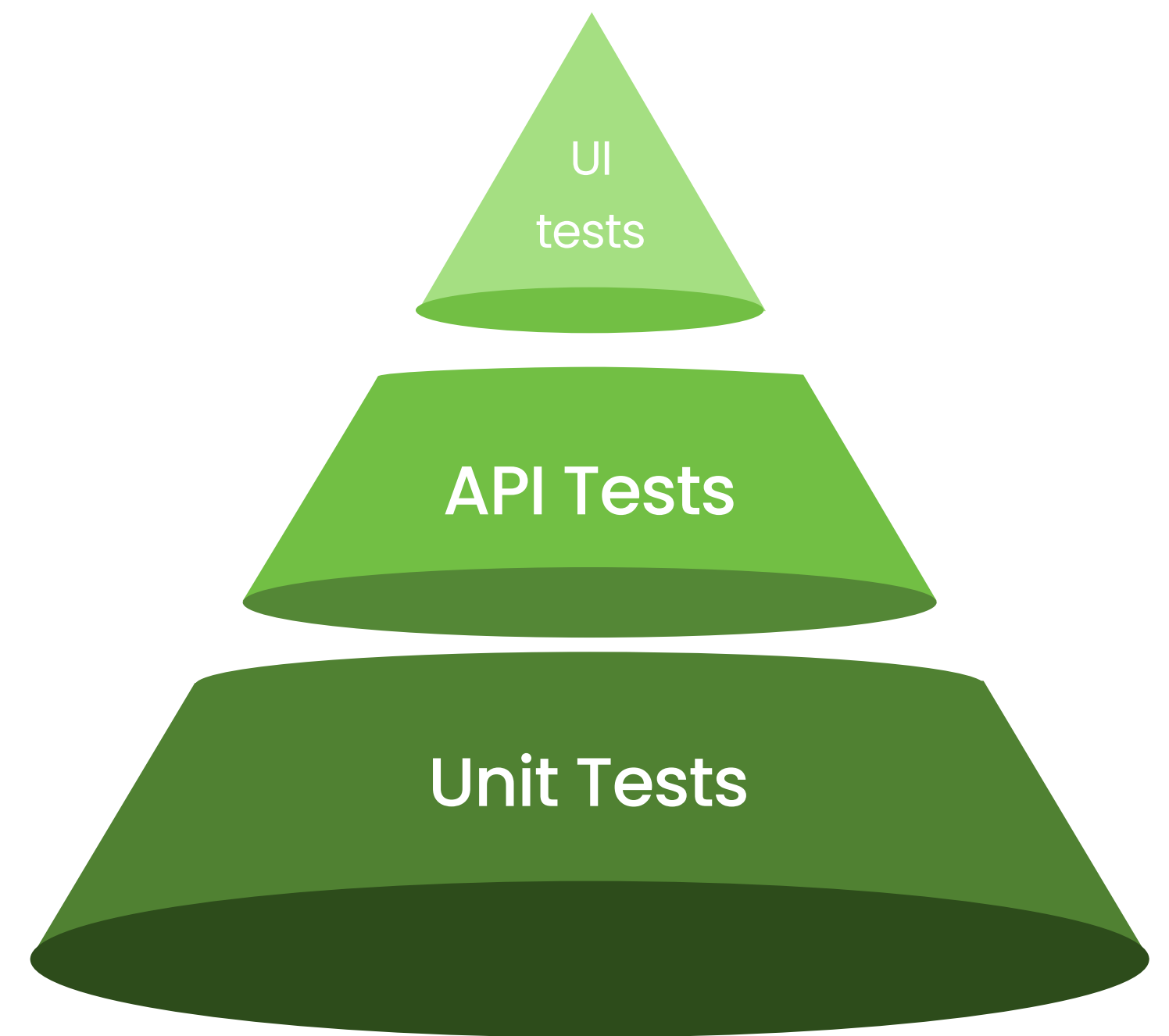


API Tests vs UI Tests

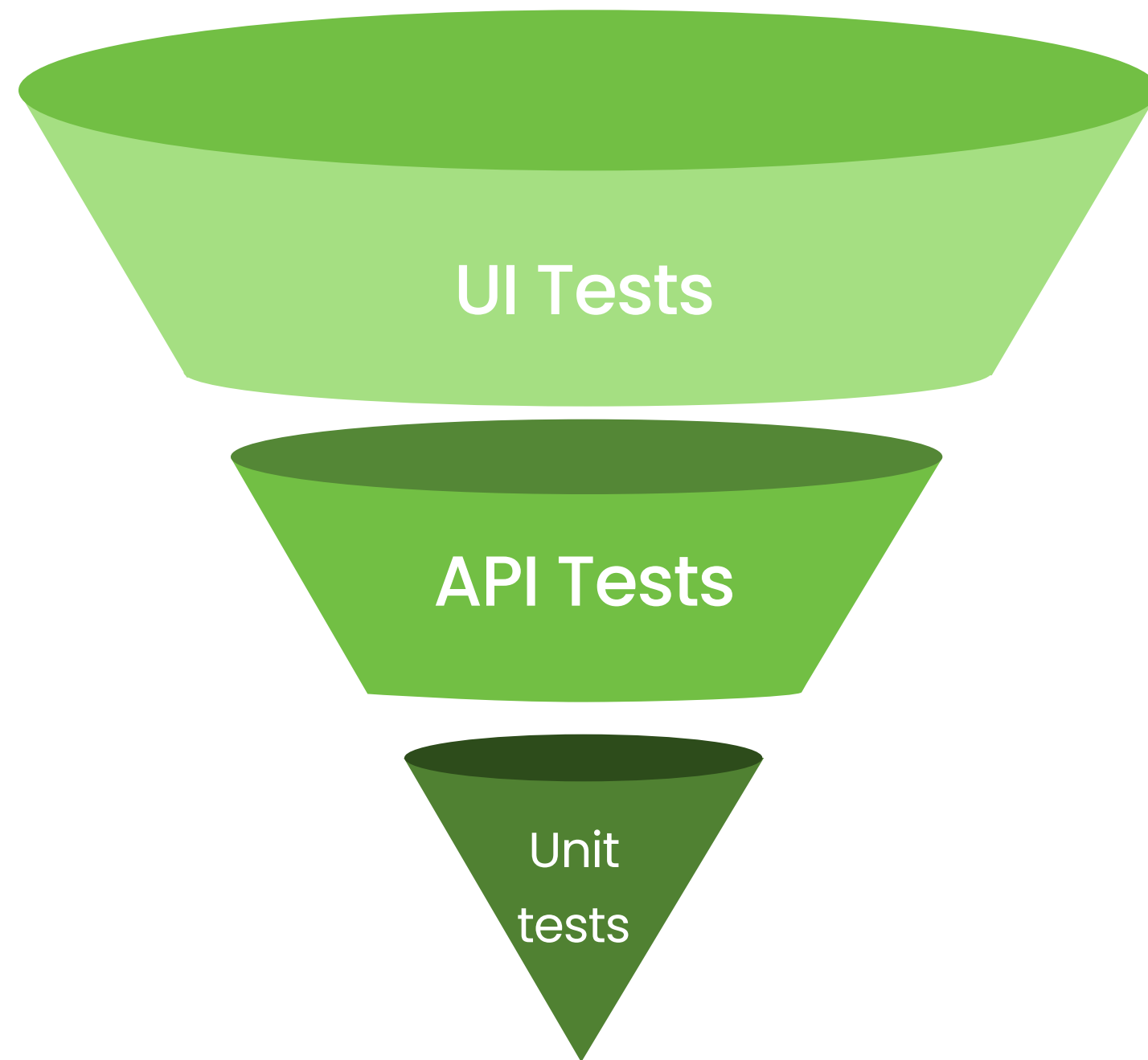
1. Test execution time
2. Lower Maintenance
3. Stability
4. Cut expenses

Test automation pyramid

1. Test Automation sequence
2. Automated Tests Quantity



Ideal test automation pyramid

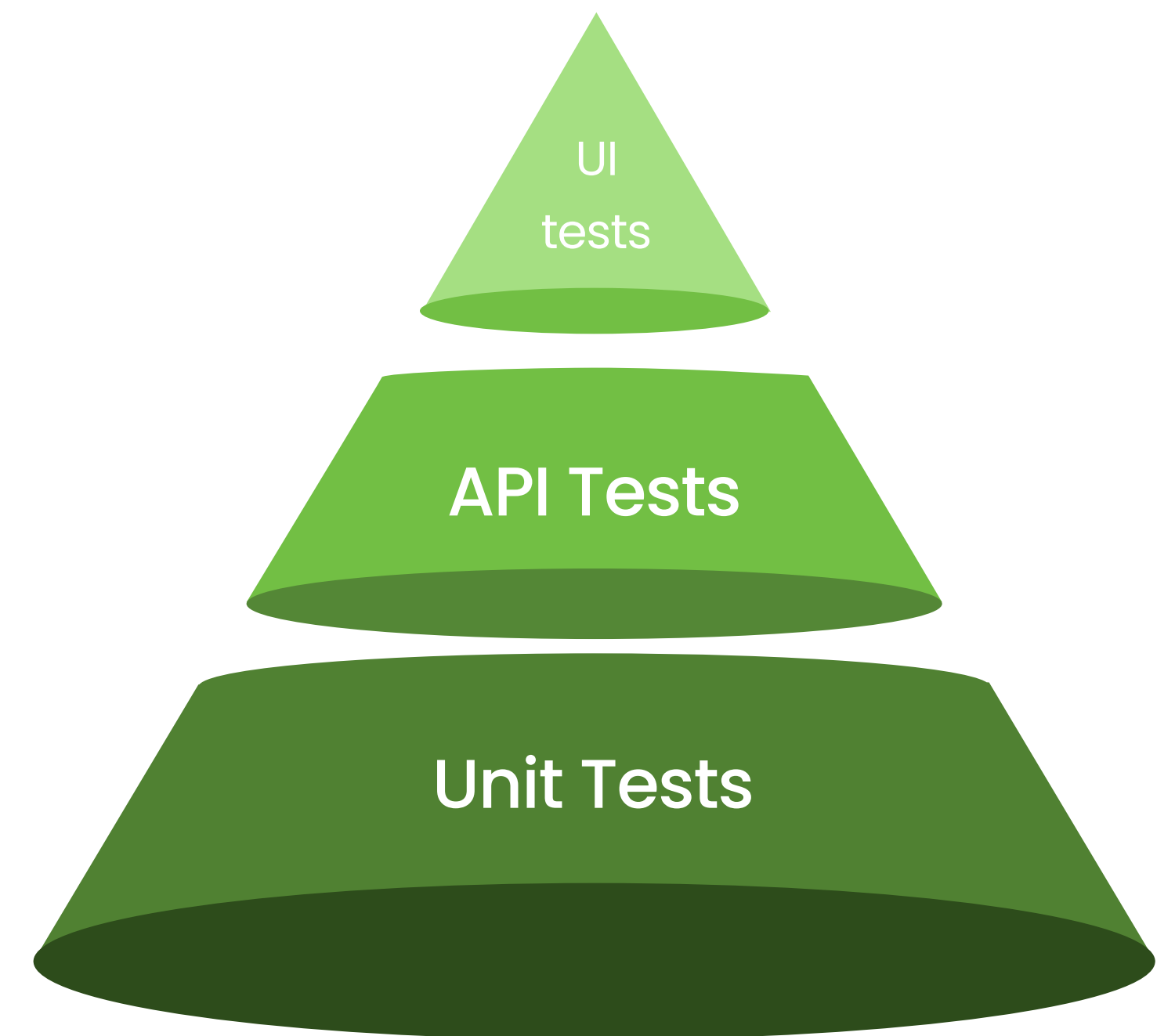


Automation "Ice cream cone" Anti-Pattern

More time & effort



Higher ROI



Ideal test automation pyramid

Cost



Time

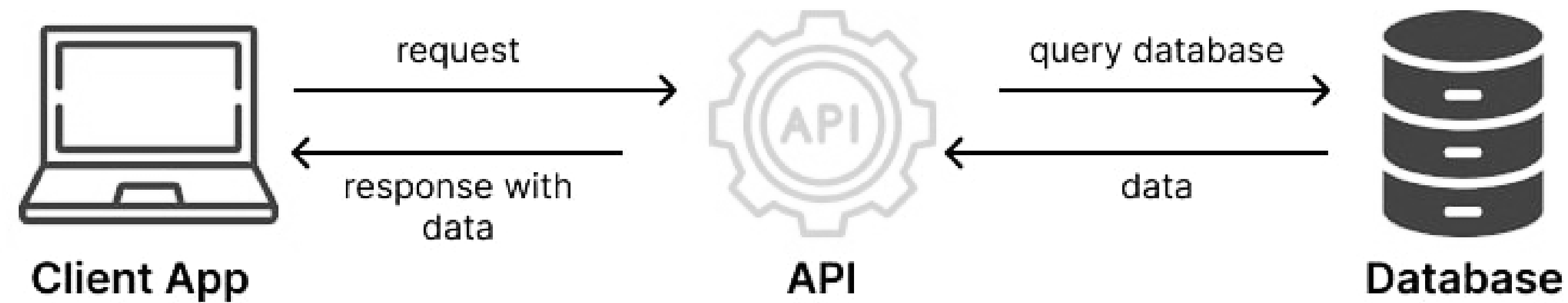


REST Assured vs API Testing Tools

- Framework creation and Code Reusability
- TestData
- Reports



API Testing process



Request object

Request endpoint

Request method

HTTP headers

Request body

Response object

Status code

Status message

HTTP headers

Response body

Process and code example of API automation using Java and REST Assured



Test Data

- **JSON**
- **XML**
- ...

```
{  
  "cbsCode": "*****",  
  "docType": "*****",  
  "docNumber": "*****",  
  "docIssuedOn": "*****",  
  "docIssuedBy": "*****",  
  "legalAddress": "*****",  
  "email": "*****"  
}
```

Data Reader

- Gson
- fromJson()

```
public Loan getLoanFromFile(String path){  
    Loan loan = null;  
    try {  
        reader = Files.newBufferedReader(Path.of(path));  
        loan = gson.fromJson(reader, Loan.class);  
    } catch (IOException | JsonSyntaxException | JsonIOException e) {  
        logger.info("Some error");  
        e.printStackTrace();  
    }  
    return loan;  
}
```

Data Bean

```
public class Loan {  
    private String cbsCode;  
    private String docType;  
    private String docNumber;  
    private String docIssuedOn;  
    private String docIssuedBy;  
    private String legalAddress;  
    private String email;  
  
    public String getCbsCode() { return cbsCode; }  
  
    public void setCbsCode(String cbsCode) { this.cbsCode = cbsCode; }  
  
    public String getEmail() { return email; }  
  
    public void setEmail(String email) { this.email = email; }  
  
    public String getDocNumber() { return docNumber; }  
  
    public void setDocNumber(String docNumber) { this.docNumber = docNumber; }  
  
    public String getDocIssuedOn() { return docIssuedOn; }  
  
    public void setDocIssuedOn(String docIssuedOn) { this.docIssuedOn = docIssuedOn; }  
}
```

Serializer

- Jackson
- ObjectMapper
- **writeValue()**

```
public static String requestBodyToString(Object requestBody) {  
    String requestBodyString = null;  
  
    try {  
        requestBodyString = mapper.writeValueAsString(requestBody);  
    } catch (Exception e) {  
        e.printStackTrace();  
    }  
  
    return requestBodyString;  
}
```

Request Method

- **REST Assured**

```
public Response requestCreateLoan(Loan requestBody) {
    String requestBodyString = RequestConverter.requestBodyToString(requestBody);
    Response response = RestAssured
        .given()
        .log()
        .all()
        .headers(headers)
        .body(requestBodyString)
        .request(Method.POST, LoanStaticEndpoint.CREATE_LOAN);

    if (response.getStatusCode() == HttpURLConnection.HTTP_CREATED) {
        logger.info("The loan with the following code: " + requestBody.getLoanCode() + " is created.");
    } else {
        logger.info("There is some problem during " + requestBody + " loan creation.");
    }
    return response;
}
```

Deserializer

- Jackson
- ObjectMapper
- readValue()

```
public static LoanResponse responseToLoan(Response response){
    LoanResponse object = null;

    try {
        object = mapper.readValue(response.asString(), LoanResponse.class);
        logger.info("Loan deserialized to java object.");
    } catch (Exception e) {
        logger.info("Failed to deserialize to java object.");
        e.printStackTrace();
    }

    return object;
}
```


POJO

- Jackson
- JsonProperty

```
@JsonPropertyOrder({
    "cbsCode",
    "docType",
    "docNumber",
    "docIssuedOn",
    "docIssuedBy",
    "legalAddress",
    "email"
})

public class LoanResponse {

    @JsonProperty("cbsCode")
    private String cbsCode;
    @JsonProperty("docType")
    private String docType;
    @JsonProperty("docNumber")
    private String docNumber;
    @JsonProperty("docIssuedOn")
    private String docIssuedOn;
    @JsonProperty("docIssuedBy")
    private String docIssuedBy;
    @JsonProperty("legalAddress")
    private String legalAddress;
    @JsonProperty("email")
    private String email;

    @JsonProperty("cbsCode")
    public String getCbsCode() { return cbsCode; }

    @JsonProperty("cbsCode")
    public void setCbsCode(String cbsCode) { this.cbsCode = cbsCode; }

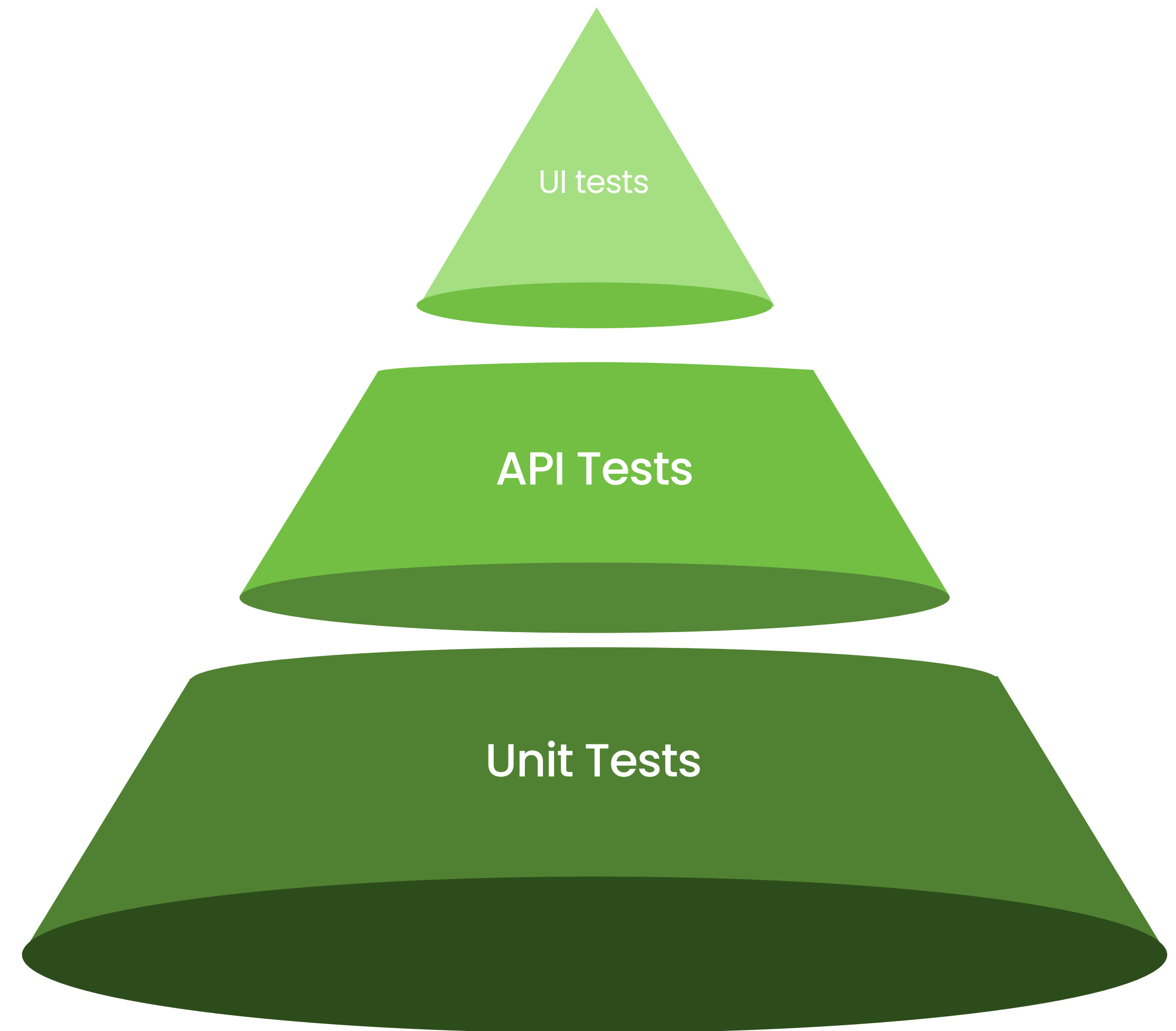
    @JsonProperty("docType")
    public String getDocType() { return docType; }

    @JsonProperty("docType")
    public void setDocType(String docType) { this.docType = docType; }
```

Validation

POJO and DataBean Objects Assertion

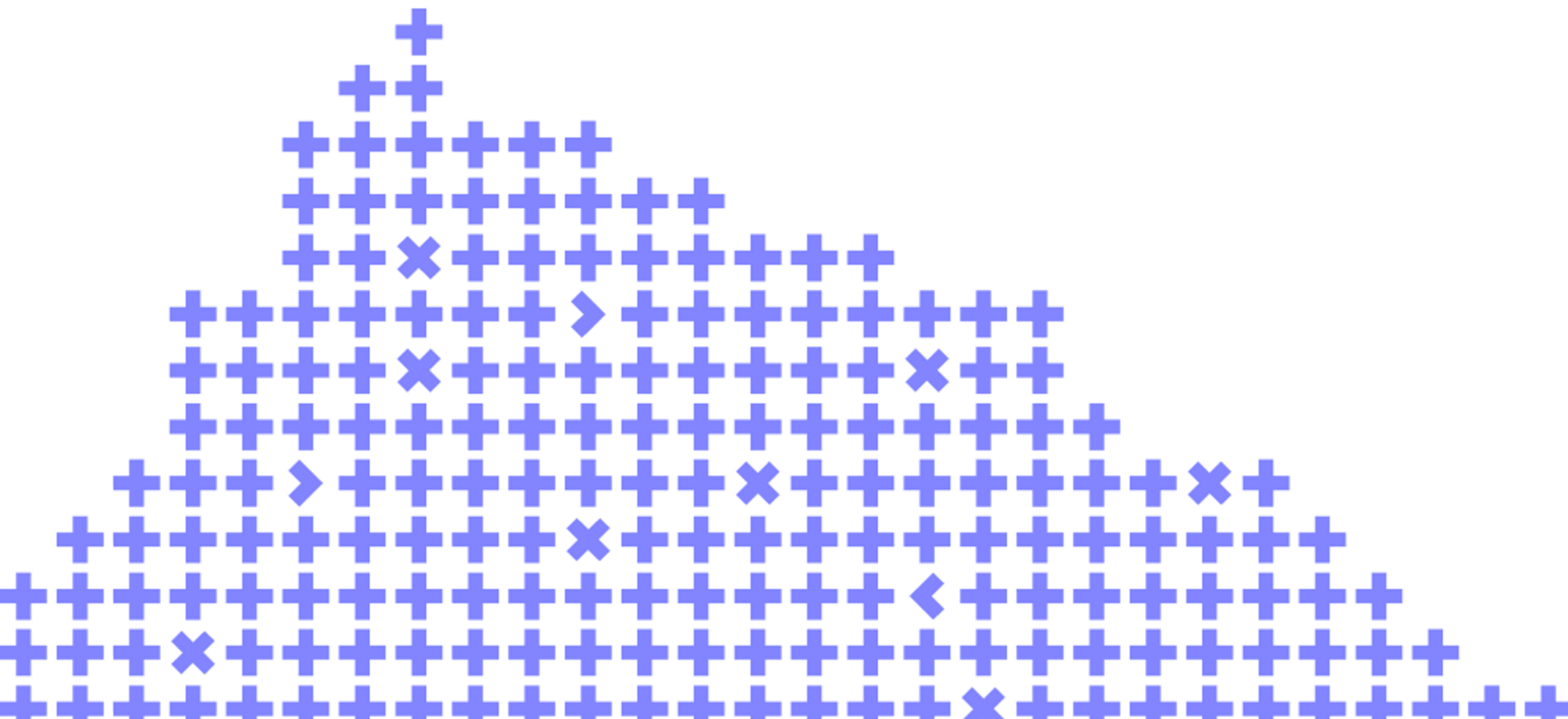
- Architecture Styles
- The Importance of API Automation
- The Benefits of API Test Automation Framework
- Test Automation Process



Questions ?

Leave your feedback!

You can rate the talk and give a feedback on what you've liked or what could be improved



Co-organizer

Yandex